

Registration of 'Chet' Sand Bluestem

'Chet' sand bluestem (*Andropogon hallii* Hack.) (Reg. no. CV-12, PI 635994) was released in August 2004 by the USDA-ARS in cooperation with the Oklahoma Agricultural Experiment Station and the USDA-Natural Resources Conservation Service (NRCS). Chet is a medium-stature sand bluestem recommended for pasture, hay, complementary rangeland-forage production systems, soil stabilization, or reclamation of marginal croplands in the central and southern Great Plains of the USA. Chet was tested under the experimental designation of AB Medium.

Chet was derived from a collection of big bluestem (*Andropogon gerardii* Vitman) and sand bluestem that consisted of 158 accessions received as seed from the USDA-ARS North Central Regional Plant Introduction Station in 1985. The entries of this collection were assembled by the late Dr. Kling Anderson, Kansas State University, Manhattan, KS. Big bluestem and sand bluestem will intercross and produce progeny with high reproductive fertility. Chet sand bluestem went through three phenotypic mass selection cycles. In Cycle 1, individual seeds of the 158 entries were germinated, grown in a greenhouse, and transplanted in the spring of 1986 into a field nursery consisting of 1048 plants spaced on 1.1-m centers. The number of plants per entry varied from 1 to 12. Plants were visually rated for growth and regrowth, disease incidence, and leafiness during the summers of 1986 and 1987. Open-pollinated seed was collected from 53 selected plants in the fall of 1988 and, on the basis of female fertility (as estimated from percentage seed set, seed purity, and seedling survival), 10 of 53 selections were discarded. In Cycle 2, seeds of 43 plants were germinated, grown in a greenhouse, and transplanted in the spring of 1989 into an isolation field nursery consisting of 1584 plants spaced on 1.1-m centers. The number of plants per entry varied from 20 to 40. These plants were visually rated for growth and regrowth, disease incidence, leafiness, and plant height at anthesis during the summers of 1989 to 1991. In the spring of 1991, inferior plants were destroyed and open-pollinated seed was collected from 320 individual plants in the fall of 1991. Seed from each plant was analyzed for purity and classified by weight into light and heavy fractions. One-hundred-and-ninety-seven plants were selected that had a seed weight greater than the average of the 320 individual plants. In Cycle 3, seeds from the 197 plants selected in Cycle 2 were sown into greenhouse pots in the spring of 1992. For each entry, four seeds were sown per pot, and the most vigorous seedling per pot was used to establish the next field nursery. These plants were classified into short (<1.4 m), medium (1.4–1.6 m), and tall (>1.6 m) groups based on the height of their maternal parent in the Cycle 2. An isolation block consisting of 3128 plants was established for the medium height line in the spring of 1992. The number of plants per entry varied from 15 to 20. In the spring of 1993, inferior plants that were either stemmy, slow to tiller, had poor regrowth, or appeared diseased were destroyed, and open-pollinated seed was individually collected from 69 plants in the fall of 1993. Seeds from these plants were analyzed for purity and classified by weight into light and heavy fractions. Six plants were selected that had a seed weight greater than the average of the 69 individual plants. Seed from these plants were used to produce the population AB Medium that was later released as Chet. The phenotype of Chet is typical of sand bluestem.

Small plot field evaluations of Chet were conducted in the central and southern Great Plains in 2001 through 2003 at the USDA-ARS Southern Plains Range Research Station at Woodward, OK; Oklahoma State University, Perkins Research Station, Perkins, OK; and the USDA-NRCS Plant Material Centers at Manhattan, KS; Knox City, TX; and Nacogdoches, TX. Averaged across these locations, the forage dry matter yield of Chet (6385 kg ha⁻¹) was 8.8% greater than that of 'Woodward' sand bluestem ($P < 0.05$). The seasonal average crude protein (64 g kg⁻¹) and in vitro digestible dry matter (510 g kg⁻¹) was not significantly different from Woodward sand bluestem in this field trial ($P > 0.05$) in 2001 and 2002.

Seed yields were evaluated in small plots at Woodward and Perkins, OK, in 2001 and 2002. The seed yield of Chet (59 kg ha⁻¹ pure seed) was 59% greater than that of Woodward sand bluestem ($P < 0.05$).

In replicated grazing trials during 2000 through 2003 at the USDA-ARS Southern Plains Experimental Range near Ft. Supply, OK, the average daily gain of stocker cattle (1.19 kg d⁻¹ during a 62-d grazing period) was not significantly different ($P > 0.05$) from that of Woodward sand bluestem.

Chet is named in honor of the late Mr. Chester L. Dewald, Research Agronomist, USDA-ARS Southern Plains Range Research Station, Woodward, OK. Mr. Dewald was instrumental in the breeding and selection of this cultivar before his retirement and death.

Seed of Chet is deposited in the National Plant Germplasm System, where it will be available for research purposes, including the development and commercialization of new cultivars. Appropriate recognition is requested if this release contributes to the development of a new breeding line or cultivar. Pedigreed seed of Chet will be limited to Breeder, Foundation, Registered, and Certified classes. One generation of seed increase will be allowed for each seed class. Breeder seed will be maintained by the USDA-ARS. Foundation seed will be under the direction of the Oklahoma Foundation Seed Stocks, Inc., Department of Plant and Soil Sciences, Oklahoma State University, Stillwater, OK 74078. United States Plant Variety Protection will not be sought for Chet.

T.L. SPRINGER,* C.L. DEWALD, P.L. SIMS, R.L. GILLEN,
V.H. LOUTHAN, W.J. COOPER, C.M. TALIAFERRO,
R.L. WYNIA, M.J. HOUCK, JR., R.G. ESQUIVEL,
J.A. STEVENS, AND M.R. BRAKIE

T.L. Springer, the late C.L. Dewald, P.L. Sims, R.L. Gillen, V.H. Louthan, and W.J. Cooper, USDA-ARS, Southern Plains Range Research Station, 2000 18th Street, Woodward, OK 73801; C.M. Taliaferro, Oklahoma State Univ., Dep. of Plant and Soil Sciences, Stillwater, OK 74078; R.L. Wynia, USDA-NRCS, Manhattan Plant Materials Center, Manhattan, KS 66502; M.J. Houck, Jr. and R.G. Esquivel, USDA-NRCS, Knox City Plant Materials Center, Knox City, TX 79529; J.A. Stevens and M.R. Brakie, USDA-NRCS, East Texas Plant Materials Center, Nacogdoches, TX 75964. All programs and services of the USDA are offered on a nondiscriminatory basis without regard to race, color, national origin, religion, sex, age, marital status, or handicap. Registration by CSSA. Accepted 31 Mar. 2005. *Corresponding author (tspringer@spa.ars.usda.gov).

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677 S. Segoe Rd., Madison, WI 53711 USA